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February 3, 2012

Dr. Burl W. Haar  
Executive Secretary  
Minnesota Public Utilities Commission  
127 7<sup>th</sup> Place East, Suite 350  
St. Paul, MN 55101-2147

**RE: Comments and Recommendation of the Department of Commerce  
Energy Facility Permitting Staff (Docket No. IP-6701/WS-08-1233)**

Dear Dr. Haar:

Attached are the Comments and Recommendation of the Department of Commerce Energy Facility Permitting (EFP) Staff:

**In the Matter of the AWA Goodhue, LLC 78 Megawatt Large Wind Energy Conversion System in Goodhue County, Minnesota.**

The EFP staff Comments and Recommendations address the Permittee's Revised (January 24, 2012) Avian and Bat Protection Plan and agency comments from the Minnesota Department of Natural Resources and the United States Fish and Wildlife Service. EFP staff recommends approval of the Revised Avian and Bat Protection Plan.

Notification of the Commission's decision in this matter may be sent to:

Christina K. Brusven  
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Minneapolis, MN 55402-1425

Tel: 612-492-7412  
Email: [cbrusven@fredlaw.com](mailto:cbrusven@fredlaw.com)

Staff is available to answer any questions the Commission may have.

Sincerely,

Larry B. Hartman  
DOC EFP Staff

Attachment

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## **BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION**

### **COMMENTS AND RECOMMENDATIONS OF THE MINNESOTA DEPARTMENT OF COMMERCE ENERGY FACILITY PERMITTING STAFF**

**DOCKET No. IP-6701/WS-08-1233**

Meeting Date: .....Agenda Item \_\_\_\_

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Company:     **AWA Goodhue Wind, LLC**

Docket No.   **IP-6701/WS-08-1233**

**In the Matter of AWA Goodhue Wind, LLC 78 Megawatt Large Wind  
Energy Conversion System in Goodhue County, Minnesota.**

Issue(s):     Should the Commission approve the Permittee's Avian and Bat Protection Plan  
                  compliance filing?

DOC EFP Staff: Jamie MacAlister and Larry Hartman .....651-297-1335

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#### **Relevant Documents**

Revised Avian and Bat Protection Plan.....January 24, 2012  
Response from AWA Goodhue, LLC on Agency Comments.....January 24, 2012  
U.S. Fish and Wildlife Service Comment Letter.....January 12, 2012  
DNR Comment Letter.....January 12, 2012  
Avian and Bat Protection Plan .....December 15, 2011  
EFP electronic comment solicitation to DNR and USFWS.....December 27, 2011  
ABPP Errata.....December 28, 2011  
Order Issuing a Site Permit to AWA Goodhue Wind, LLC.....August 23, 2011

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The enclosed materials are the work papers of the Department of Commerce Energy Facility Permitting Staff (EFP). They are intended for use by the Public Utilities Commission and are based on information already in the record unless otherwise noted.

## **Documents Attached**

### **1. Project Boundary Map**

See eDocket filings (08-1233) at <https://www.edockets.state.mn.us/EFiling/search.jsp>, or the Commission website at: <http://energyfacilities.puc.state.mn.us/Docket.html?Id=25631> for project related documents.

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## **Statement of the Issues**

Should the Commission approve the AWA Goodhue Wind, LLC Avian and Bat Protection Plan as revised?

## **Introduction and Background**

The Minnesota Public Utilities Commission (Commission) issued a site permit to AWA Goodhue Wind, LLC (Goodhue Wind or Permittee) to construct a 78 Megawatt Large Wind Energy Conversion System (LWECS) in Goodhue County on August 23, 2011, pursuant to Minnesota Rules chapter 7854.

Site permit section 6.7 requires Goodhue Wind to develop an Avian and Bat Protection Plan (ABPP) in consultation with the Minnesota Department of Natural Resources (DNR) and the U. S. Fish and Wildlife Service (USFWS) and submit it to the Commission for approval prior to the pre-construction meeting.

The purpose of the avian and bat protection plan is to address avian and bat protection measures during the construction and operation of the project. Additionally, section 13 Special Conditions, required provisions for surveys and measures to protect Bald Eagles (13.1.1), Bats (13.1.2), and Loggerhead Shrike (13.1.3).

Goodhue Wind filed its ABPP with the Commission December 15, 2011, and filed a Revised ABPP on January 24, 2012, addressing outstanding DNR and USFWS concerns.

## **Regulatory Process and Procedures**

Pursuant to Minnesota Rule 7854.1000 Final Permit Decision, subp. 4 Conditions, the Commission may include conditions in a site permit that are reasonable to protect the environment, enhance sustainable development, and promote the efficient use of resources. Permit condition 6.7 of the site permit issued by the Commission to Goodhue Wind requires an ABPP to be developed and approved by the Commission prior to the pre-construction meeting. Permit conditions 13.1.1, 13.1.2, and 13.1.3 place additional conditions on the ABPP for Eagles, Bats, and Loggerhead Shrike, respectively.

Permit Condition 6.7, Avian and Bat Protection Plan, states:

"The Permittee shall, in consultation with the Commission and DNR, prepare an avian and bat protection plan and submit it to the Commission for approval prior to the pre-construction meeting. The plan shall address how results of pre-construction avian surveys informed micro-siting and steps to be taken to identify, avoid, minimize and mitigate impacts to avian and bat species during the construction and operation phases of the Project. The plan shall also address formal and informal monitoring, training, wildlife handling, documentation (e.g., photographs), and reporting protocols for each phase of the Project, and shall include specific eagle, bat and Loggerhead Shrike provisions and reporting as provided in Section 13.

The Permittee shall submit quarterly avian and bat fatality reports to the Commission. Quarterly reports are due by the 15th of each January, April, July, and October following commercial operation and terminating upon the expiration of this permit. Each report shall identify any dead or injured avian or bat species, location of find by turbine number and date of the find for the 10 reporting period in accordance with the reporting protocols. If a dead or injured avian or bat species is found, the report shall describe the potential cause of the occurrence and the steps taken to avoid future occurrences."

Permit Condition 13.1, Avian and Bat Protection Plan Special Provision, states:

"The Avian and Bat Protection Plan in Section 6.7 shall include plans and protocols for pre- and post-construction surveys and protection measures for eagles, bats and Loggerhead Shrike. Annual reports of the results of these efforts, including results of the post-construction avian and bat surveys, shall to be submitted to the Commission, DNR, and U.S. Fish and Wildlife Service in accordance with other requirements of this permit. Based on those results, the Commission may modify conditions in this permit pursuant to Section 11.2. "

#### 13.1.1 Eagles

"The permittee shall develop a plan for monitoring Bald and Golden Eagle nest sites near turbine locations and shall develop protocol to identify proposed point count locations, suggested count duration and number of survey visits. Point counts of 20-30 minutes shall be conducted to document eagle movements in these areas. Multiple point count visits shall be conducted to cover the remainder of the 2011 nesting season (eaglets are expected to fledge by mid-July). Additional point counts shall be conducted in the fall of 2011 and the winter of 2011-2012. Details of the plan shall be included in the Avian and Bat Protection Plan. Ongoing monitoring for eagles shall be conducted in accordance with the Avian and Bat Protection Plan and U.S. Fish and Wildlife Service requirements. The Permittee shall submit the results of the summer, fall, and winter surveys, and any subsequent surveys, to the Commission within one month of completion of the surveys."

### 13.1.2 Bats

"The Permittee shall install a minimum of two Anabat detectors on each temporary or permanent meteorological tower. Data should be collected, at a minimum, from July 15 to November 15, 2011, and May 1 to November 15, 2012. One Anabat detector on each meteorological tower shall be mounted at 5 meters above ground, and one shall be mounted as close to the rotor-swept area as possible. Additional monitoring or mitigation measures may be imposed based on results obtained from bat surveys. The Permittee shall submit the results of the 2011 monitoring by December 15, 2011, and the 2012 monitoring by December 15, 2012. Each report shall include an update on the status of the U.S. Fish and Wildlife Service potential listing of the Northern long-eared bat."

### 13.1.3 Loggerhead Shrike

"The Permittee shall avoid placement of turbines in areas identified as highly suitable or very highly suitable loggerhead shrike habitat. Alternate turbine sites are to be considered the primary avoidance strategy. If alternate sites cannot be utilized, the Permittee shall provide the Commission and DNR with a Loggerhead Shrike Protection Plan for approval by the Commission detailing why avoidance is not possible, outlining strategies to minimize effects to Loggerhead Shrike, and providing mitigation measures for impacts. Permittee shall conduct two years of post-construction fatality monitoring to evaluate the impacts of wind turbines sited in loggerhead shrike habitat determined to be highly to very highly suitable."

The Permittee filed its ABPP to the Commission December 15, 2011. EFP solicited comments on the plan from DNR and USFWS; both agencies submitted comments on January 12, 2012. In response to comments, the Permittee submitted a Revised ABPP on January 24, 2012, addressing outstanding EFP, DNR and USFWS concerns.

## **Staff Analysis and Comments**

The following analysis and comments address the development of the ABPP and the special conditions for eagles, bats, and shrikes. Agency comments are also summarized in each section.

The purpose of an ABPP is to provide a plan for avoiding and minimizing impacts to avian and bat species during the construction and operation of the project. Commercial wind farms are designed to operate for 20-30 years, and site permits issued by the Commission are valid for up to 30 years. Because of the longevity of these projects and the impacts they have on avian and bat species, it is necessary to have a mechanism for identifying, avoiding, minimizing, and mitigating impacts post-permit issuance. The recent requirement of ABPPs for wind projects is part of an on-going effort by state and federal wildlife agencies to address the long-term impacts of commercial wind turbines on wildlife. Impacts to wildlife can be direct (e.g. collision with turbine blades) or indirect (e.g. habitat avoidance behaviors). ABPPs are dynamic documents and structured to incorporate new data and practices necessary to respond to potential environmental changes over time.

ABPPs incorporate information collected during pre-construction risk assessments and surveys, and define the methods and practices to be used in the future. Pre-construction risk assessments

and surveys in the project boundary are used to inform turbine layout and identify potential site-specific risks to avian and bat species. A model for this process is outlined in the USFWS Interim Guidelines and the recent Draft Land Based Wind Energy Guidelines<sup>1</sup> and is recommended by EFP as an integral part of developing a complete application for an LWECS site permit.<sup>2</sup> However, the Goodhue wind project was well into the permitting process when the new draft federal guidelines were being developed and prior to the development of EFP application guidelines.

ABPPs became standard permit conditions in 2010, with the extent of formal monitoring determined in part by site specific survey work and by technical review from state and federal wildlife agencies. To date, two ABPPs have been approved<sup>3</sup> and several others are under development in consultation with EFP, DNR and USFWS.

### ***Goodhue Wind ABPP Development***

The project is located in what is termed as the Mississippi Flyway, a broad geographic corridor used by migrating birds. The nearest turbine is located approximately 15 miles west of the Mississippi River.<sup>4</sup> Goodhue Wind retained Westwood Professional Services to conduct pre-construction Avian and Risk Assessment<sup>5</sup> wildlife risk assessment studies and a Loggerhead Shrike Habitat Assessment.<sup>6</sup> Avian migration surveys were completed from April 5-May 24, 2010. Twenty 5-minute point counts were conducted during this survey. Additional studies conducted since permit issuance include eagle nest surveys, aerial eagle nest surveys, eagle migration and breeding bird surveys, and acoustic bat monitoring surveys. The primary focus of post-permit surveys has been to document eagle nesting and movement in the project area.

Pursuant to Permit Conditions 6.7 and 13.1, Goodhue Wind developed the Avian and Bat Protection Plan (ABPP) in consultation with EFP, DNR, and USFWS. Specifically, the Permittee worked with EFP, DNR and USFWS to refine turbine placement and micrositeing to avoid Loggerhead Shrike habitat, to review information and documentation pertaining to Trumpeter Swans, to review and develop survey monitoring protocol, and to review and respond to comments on drafts of the ABPP during development. Consultation efforts included, but were not limited to, meetings, site visits, conference calls, and review and comment of draft documents.

The Permittee, EFP and USFWS met in August 2011 to discuss the outline and timeline for the ABPP. A draft was submitted and reviewed by the agencies and comments submitted to the Permittee in September 2011. A second review of the draft ABPP occurred in November 2011 and was followed by official submittal of the Goodhue Wind ABPP to the Commission December 15, 2011. EFP then solicited agency comments via email on the Avian and Bat Protection Plan. DNR and USFWS submitted comments on January 12, 2012. In response to

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<sup>1</sup> Draft USFWS Land Based Wind Energy Guidelines, September 2011.

[http://www.fws.gov/windenergy/docs/WEG\\_September\\_13\\_2011.pdf](http://www.fws.gov/windenergy/docs/WEG_September_13_2011.pdf)

<sup>2</sup> Application Guidelines. Minnesota Department of Commerce-Energy Facilities Permitting, 2010.

<sup>3</sup> Lakefield Wind (2010) and Big Blue (2011)

<sup>4</sup> Avian and Bat Protection Plan. December 2011. Appendix D.

<sup>5</sup> Desktop Avian and Bat Risk Assessment. October 2009.

<sup>6</sup> Loggerhead Shrike Habitat Assessment. July 2010.

comments, the Permittee submitted a Revised ABPP on January 24, 2012, addressing outstanding DNR and USFWS concerns.

DNR, in its January 12, 2012, comments, referenced several sections of the ABPP; however, the primary focus of comments was concern over state listed endangered and threatened species, and Species of Greatest Conservation Need. At the time the permit was issued, the species listed in special permit conditions 13.1.1-13.1.3 (Bald Eagles, Loggerhead Shrike, and the potential listing of Northern Long-eared bats) were identified. Trumpeter swans were found two miles from the project boundary during summer 2011 field surveys and have been subsequently addressed in the ABPP.

The USFWS, in its January 12, 2012, comments, provided general and specific comments on the ABPP. General comments included clarification of the intent by the Permittee to obtain an Incidental Take Permit (ITP) in accordance with US 50 CFR 22.6 and request for an anticipated timeline for doing so; the likelihood of additional monitoring and adaptive management efforts for the life of the project as conditions of a USFWS take permit; and, the evaluation of curtailment options seasonally or daily based on mortality trends observed during monitoring.

DNR has indicated to EFP staff in conversations since the Revised ABPP was filed that the Revised ABPP adequately addresses the issues within its jurisdiction. In addition, USFWS has indicated to EFP that the commitment by the Permittee to pursue the USFWS Incidental Take Permit (ITP) will resolve concerns regarding potential eagle takes and continued monitoring, and provide a mechanism for periodic review and updating of the strategies outlined in the Revised ABPP.

### ***Eagles***

DNR made several comments on eagles. Comments included the potential for additional nests within and near the project boundary, the amount of eagle activity predicted to be within the project boundary, potential collision risk, allegations of “eagle baiting” activity, habitat modification as a mitigation technique, and curtailment.

The majority of the comments received from USFWS focused on specific sections in the ABPP regarding eagles. Comments focused on areas where additional information or clarification would be useful, such as adaptive management measures, continued monitoring efforts, wildlife and carcass disposal handling and protocol, curtailment, and risk modeling.

**EFP Response:** In accordance with permit condition 13.1.1 Eagles, the Permittee has continued monitoring efforts since June 2011 as recommended by the USFWS and DNR. These efforts have included additional point counts and flight path monitoring, nest monitoring and verification, as well as winter aerial nest surveys conducted in November and December 2011. Reports from recent monitoring and survey efforts have been submitted to the Commission, DNR and USFWS.<sup>7</sup> Eagle use surveys, nest monitoring, and surveys will continue throughout the winter of 2012 and point count surveys will be continued through the end of July 2012. Post-construction avian and bat fatality monitoring will occur after the project is operational for a minimum of two years and will be re-evaluated by EFP, DNR and USFWS based on results

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<sup>7</sup> Eagle Point Counts Report: Fall Migration 2011. Filed January 2012.



obtained in the previous two years of study. The turbine layout has taken current eagle nesting information into consideration, and all but one turbine is sited at least one mile away from existing nests.

Eagles are a state listed Species of Special Concern and Bald and Golden Eagles are protected under the federal Bald and Golden Eagle Protection Act (BGEPA), which affords continued protection for both species, yet also allows for “takes” of eagles. Due to the number of eagles observed within and near the project boundary, the USFWS has recommended the Permittee obtain an Incidental Take Permit (ITP). All take permits are subject to regional take thresholds as determined by the USFWS. The permit is voluntary and strongly recommended by the USFWS when the risk of taking an eagle is unavoidable.

A “take” includes killing, harassing, or disturbing the birds or their nests unless permitted, and is the legal foundation for an ITP. Before an ITP can be issued, the project developer must submit an application that meets the regulatory issuance criteria and that is compatible with the preservation of eagles as required by the BGEPA, including:

1. Avoiding and minimizing take to the maximum degree achievable;
2. Conducting adequate post-construction monitoring to determine effects;
3. Offsetting any remaining take through compensatory mitigation; and
4. Ensuring the direct, indirect, and cumulative effects are compatible with the preservation of bald eagles and golden eagles.

The West Butte Wind Project in Oregon is currently proceeding with the ITP process; it is the first wind project to do so. The process includes environmental review, with a Draft Environmental Assessment released December 29, 2011. Collision risk modeling for West Butte estimated approximately 0.56-1.48 eagle collisions per year. The USFWS is considering issuing a 5-year permit for up to 3 eagles; a decision is expected in 2012.

Eagle take permits have also been issued for high voltage transmission line projects. The Brookings-Hampton line received an ITP from the USFWS in 2011.<sup>8</sup> The 5-year permit allows Great River Energy to take and/or disturb up to 7 bald eagles during the course of the construction and maintenance of the 345 kV line over the Minnesota River near Belle Plaine. The permit specifies the number of bald eagles allowed by take for the years 2012-2015. The route permit was issued in March 2011, and the take permit issued in October 2011. A 3-year take permit was issued for the Bemidji-Grand Rapids line authorizing the disturbance of up to four eagle nests during the construction of the line.<sup>9</sup> In both cases, the need for the take permit was identified during the state permitting process and environmental review, but was not finalized until after the permits were issued.

In the Revised ABPP, the Permittee restated its commitment to applying for an ITP and provided a timeline, which calls for a draft ITP application to be submitted in January 2012. EFP believes

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<sup>8</sup> Federal Fish and Wildlife Permit for Great River Energy. October 2011.

<sup>9</sup> Federal Fish and Wildlife Permit for Ottertail Power Company. December 2010.

that the Revised ABPP provides the framework envisioned in permit condition 13.1.1 for monitoring eagle activities and addressing impacts; it does not limit the potential conditions, Best Management Practices and Reasonable and Prudent Measures that might be imposed by USFWS through an Incidental Take Permit. The USFWS is the governing authority regarding eagles and the BGEPA, and the USFWS has indicated that its remaining concerns and issues regarding eagles will be addressed through the federal permitting process.

With regard to habitat modification, EFP agrees with DNR that any modification considered to mitigate impacts to one species should not inadvertently impact another. USFWS also requested clarification on this topic. The Revised ABPP clarifies this language and provides that the Permittee will continue consultation and coordination with affected agencies to address concerns prior to any proposed actions.

Improper carcass disposal within the project boundary has raised concerns of alleged eagle baiting. In a December 21, 2011, letter to EFP staff, the Minnesota Board of Animal Health summarized its investigations into complaints of improper carcass disposal. The investigation determined that one incident of improper disposal “appeared to be a dumping for some purpose other than disposal.” Moving roadkill is allowed with a DNR permit and feeding wildlife is not an uncommon practice. EFP concurs with DNR and USFWS that it is difficult to separate eagle presence and activity in the area from opportunistic feeding sources, whether from improper carcass disposal, road kill, or other means. Due to the established presence of eagle populations near the project boundary and adjacent area, it is reasonable to conclude that the numbers of eagles present in the project area will fluctuate. Data collected on eagle presence or movement in the project area should not be assumed to be a result of any particular variable, such as improper carcass disposal. The ABPP does include risk assessments based on all data collected.

USFWS commented on risk modeling assessments performed by the Permittee to evaluate possible eagle collision risks and notes that it is not always clear which model is being used to generate estimates. The ABPP bases collision risk estimates on the Band et al. model. The Revised ABPP clarifies which model is being used and Permittee’s fall migration report provides seasonally-weighted estimates of risk.<sup>10</sup> The predicted collision risk is estimated to be from 0.651 eagle collisions per year, or 1 collision every 1.54 years, to 0.304 eagle collisions per year, or 1 collision every 3.29 years. AWA Goodhue anticipates requesting 0.304 -0.651 eagles per year in its ITP application. This range represents 0.35-0.74 percent of Minnesota’s pro-rata share of allowable annual take of bald eagles for USFWS Region 3 (i.e. 87.73 eagles).<sup>11</sup> EFP notes that any additional modeling deemed necessary by the USFWS can be required through the ITP process.

DNR and USFWS also requested a more detailed discussion on curtailment as a risk avoidance measure and adaptive management measure. Curtailment of one or more turbines has been shown to be an effective mitigation and avoidance measure for some species, such as bats. Survey and monitoring data will aid in determining which, if any, turbines are to be considered for curtailment. Curtailment may be seasonal or daily depending on results obtained from surveys and monitoring. More details on this issue were included in the Revised ABPP and the issue also will be further detailed through the ITP process.

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<sup>10</sup> Eagle Point Counts Report: Fall Migration 2011. Filed January 2012.

<sup>11</sup> id

## ***Bats***

There are seven bat species found in Minnesota, six of which have been identified within the project area. Two bat species, the Northern Long-eared and Tri-colored bat, are Minnesota Species of Special Concern, and the Northern-Long eared is under consideration by the USFWS for listing as an Endangered Species. Two other bat species, Little Brown Bat and Big Brown Bat, are proposed to be listed as state Special Concern Species.

DNR comments on the results of the 2011 Pre-Construction Acoustic Bat Monitoring Report focused on equipment failures, locations and interpretations of results, particularly regarding data incompatibility that will result between years due to the equipment failures.

The USFWS provided one comment on bats and the Permittee's statement regarding the "potential effects of wind energy on bat populations." USFWS noted that there is available scientific data indicating that wind power projects pose a threat to bats.

**EFP Response:** Permit condition 13.1.2 Bats requires the Permittee to install 2 acoustic bat monitoring detectors on the temporary or permanent meteorological towers. Two seasons of data would be collected, with the first season running from July 15-October 30, 2011, and the second from May1-November 15, 2012. The timing of surveys corresponds with peak migratory, breeding, and feeding activity of bats in the state and region. The Permittee was unable to obtain and install the acoustic monitors by July 15, 2011, and installed them by July 22, 2011. To accommodate the seven-day difference, data was collected for an additional 7 days at the end of the first data collection period. No data were collected on 23 nights in August and September at the 45 meter height or for 38 nights between September and November at the 5 meter height due to equipment failures.

On December 15, 2011, the Permittee submitted the 2011 Pre-Construction Acoustic Bat Monitoring Report in accordance with permit condition 13.1.2.<sup>12</sup> The report indicates the presence of the Northern long-eared bat at 5 meters, but none at 45 meters. However, the report indicates that the Little Brown Bat/Northern Long-eared bat group as a whole comprised approximately 25 percent of bat species detected at the 5 meter range. The report does not indicate how the results of bat activity relate to collision risk or to other pre-construction predictions regarding potential impacts to bats. In addition to direct collision with turbine blades, bats are also susceptible to death from barotrauma as a result of rapid or excessive pressure changes created by wind turbines.

Acoustic bat monitoring was recommended for this project due to the presence of suitable bat habitat within and adjacent to the project boundary and due to the presence of the Northern Long-eared bat. The permit specified the placement of acoustic bat monitoring devices on temporary and permanent meteorological towers. The Permittee has one temporary meteorological tower and has informed EFP staff the project will have only one permanent meteorological tower. The acoustic bat monitoring devices will be placed on the permanent tower for the remaining monitoring efforts.

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<sup>12</sup>2011 Pre-Construction Acoustic Bat Monitoring Report. December 2011.

EFP agrees with DNR concerns regarding data incompatibility and inconsistency as a result of equipment failures during the first season of data collection. These failures are detailed in the Bat Monitoring Report submitted December 15, 2011.

The Permit condition 13.1.2 requires the Permittee to conduct another season of acoustic bat monitoring from May 1-November 15, 2012, and a minimum of two years of post-construction fatality monitoring. However, due to the reduction of acoustic monitoring devices as a result of only one permanent meteorological and the loss of important data in 2011, EFP believes an additional year of bat acoustic monitoring data for comparative purposes and to verify the results obtained during the first season is warranted. EFP recommends seasonal acoustic monitoring in 2013 from July 1-November 15, the time frame recommended by DNR in its Draft Avian and Bat Survey Protocols. All data and reports resulting from these surveys and on-going monitoring will be submitted to the Commission, DNR and USFWS.

It should also be noted there is an established body of literature on the impacts of wind turbines on bats, with peak fatalities occurring during the migratory season of July-October. Fatality rates in the upper Midwest range from 3 bats/MW/year to 20 bats/MW/year.<sup>13</sup> Because of the fatality risk to bats from wind turbines and the additional pressures placed on bat species susceptible to white nose syndrome (more than 90 percent mortality rates have been found in infected populations), there is increasing interest in mitigation strategies such as increasing turbine cut-in speeds and seasonal curtailment to reduce fatalities.

### ***Loggerhead Shrike***

The Loggerhead Shrike is a state-threatened bird species in Minnesota and a USFWS Region 3 Species of Concern known to occur in Goodhue County. Loggerhead Shrike presence was confirmed within the project boundary in 2009. DNR comments acknowledging adjustments to the turbine layout and micro-siting to address its concerns regarding impacts to this species were received on September 21, 2011, and January 12, 2012. USFWS did not comment on Loggerhead Shrike.

**EFP Response:** According to permit condition 13.1.3, the Permittee shall avoid placement of turbines in areas identified as highly suitable and very highly suitable as defined in the Loggerhead Shrike Habitat Assessment submitted October 11, 2010. The current layout of 48 proposed turbines and 4 alternate turbine locations is the result of site visits and review of detailed aerial photographs to avoid Loggerhead Shrike habitat identified as highly suitable and very highly suitable, while meeting other siting requirements of the permit. In addition to meeting permit condition 13.1.3, the Permittee agrees to the following practices should construction activities of project infrastructure occur during the breeding and nesting period of Loggerhead Shrike near highly suitable and very highly suitable habitat:

“If construction activities occur between April and July within 200 meters of habitat considered “Highly Suitable” or “Very Highly Suitable” by the DNR, pre-construction loggerhead shrike surveys will be conducted in those areas to determine whether breeding shrikes are present. Based on a review of the turbine layout and shrike habitat rankings, only turbines 17 and 18 lie within areas ranked “Highly

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<sup>13</sup> National Wind Coordinating Committee, 2010. Wind Turbine Interactions with Birds, Bats, and their Habitats: A Summary of Research Results and Priority Questions <http://www.nationalwind.org/publications/bbfactsheet.aspx>

Suitable” or “Very Highly Suitable” for shrikes and appear to be within 200 meters of the habitat that generated these rankings. Turbines 25, 26 and A52 lie within areas ranked “Highly Suitable” or “Very Highly Suitable” for shrikes but appear to be more than 200 meters of the habitat that generated these rankings.”<sup>14</sup>

The Permittee will also be conducting 2 years of post-construction fatality monitoring for all avian and bat species, including Loggerhead Shrike.

### ***EFP Goodhue ABPP Conclusions***

The purpose of the Avian and Bat Protection Plan is to identify and mitigate impacts to avian and bat species during the construction and operation phases of the project. According to Section 6.7 of the Site Permit, the ABPP shall include, "formal and informal monitoring, training, wildlife handling, documentation (e.g., photographs), and reporting protocols for each phase of the project." Based on the project and the expected risk-level determined by pre-construction site analysis, an ABPP may or may not have formal monitoring requirements. Likewise, a permittee may need to address specific species in the ABPP if the data indicate the presence of state or federal threatened, endangered, or special concern avian and bat species. For this project, a minimum of two years of post-construction avian and bat fatality monitoring is included in the Revised ABPP, with additional monitoring dependent upon the results from the first two years of data. Based on USFWS information requirements for an Incidental Take Permit, it is likely there will be on-going monitoring and adaptive management requirements for the life of the project in accordance with federal permit conditions.

Continued agency coordination in the development and implementation of project specific ABPPs is important. As new information has become available through continued monitoring and survey efforts, the Goodhue ABPP has evolved to address the increasing number of agency concerns and requests associated with permit conditions 6.7, 13.1.1, 13.1.2, and 13.2.3 and will continue to do so. The ABPP meets the intent of these permit conditions and complies with the following:

- (1) how results of pre-construction avian surveys informed micro-siting and steps to identify, avoid, minimize and mitigate impacts to avian and bat species during the construction and operation phases of the Project,
- (2) formal and informal monitoring, training, wildlife handling, documentation (e.g., photographs),
- (3) reporting protocols for each phase of the project, and
- (4) specific eagle, bat and Loggerhead Shrike provisions and reporting as provided in Section 13.

EFP staff will continue to coordinate agency review and comment as the ABPP is implemented and as provisions of the USFWS permit become available.

Based on the data reviewed to date, the monitoring to be conducted prior to construction, and the post-construction fatality monitoring for avian and bat species, EFP concludes that AWA Goodhue Wind, LLC has consulted with EFP, DNR and USFWS, as per Permit Conditions 6.7

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<sup>14</sup> Avian and Bat Protection Plan, December 15, 2011. Section 8.4.2, P. 45.

and 13.1, in developing the Avian and Bat Protection Plan. The Permittee has been responsive to comments and continues to provide information and updates on monitoring activities to state and federal agencies and has submitted an Revised ABPP to address EFP concerns and agencies' comments filed on January 12, 2012.

In addition, the commitment by the Permittee to apply for an Incidental Take Permit through the USFWS indicates a willingness to continue the necessary monitoring and mitigation recommended to reduce impacts to avian and bat species during the construction and operation of the project. The ITP will likely impose more stringent requirements for monitoring and reporting. Approval of the Revised Goodhue Wind ABPP by the Commission will not limit potential conditions, Best Management Practices and/or Reasonable and Prudent Measures to be utilized in the future eagle or any federally listed species Incidental Take Permits. As such, EFP staff recommends approval of the Revised AWA Goodhue Wind, LLC Avian and Bat Protection Plan submitted January 24, 2012, and recommends an additional season of acoustic bat monitoring in 2013 from July 1-October 15 using the methods specified in permit condition 13.1.2.

### **Commission Decision Options**

#### **A. Avian and Bat Protection Plan Approval**

1. Grant approval of the Goodhue Wind, LLC Revised Avian and Bat Protection Plan, with the understanding that the Permittee will pursue an Incidental Take Permit from the US Fish and Wildlife Service. Commission approval shall not limit potential conditions, Best Management Practices and/or Reasonable and Prudent Measures to be utilized in the future eagle or any federally listed species Incidental Take Permits. The Permittee shall provide the Commission with monthly status reports on the progress of the ITP process.
2. Deny approval of the Goodhue Wind, LLC Revised Avian and Bat Protection Plan and advise the Permittee of the deficiencies in the Plan and the manner in which the deficiencies can be addressed.
3. Make some other decision deemed more appropriate.

#### **B. Acoustic Bat Monitoring**

1. Require an additional season of acoustic bat monitoring in 2013 from July 1-October 15 using the methods specified in permit condition 13.1.2.
2. Determine that no additional acoustic bat monitoring is required.
3. Make some other decision deemed more appropriate.

**EFP staff recommendation:** Option A. 1 and B. 1.